

THE STATUS OF THE HUMAN EBRYO ACCORDING TO MICHAEL SANDEL

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Abstract: Michael Sandel is one of the most socially committed North American philosophers. In this paper, we analyse his thoughts in relation to the moral status of the human embryo.

In general, Sandel thinks that human life should be considered as a gift, which in his opinion would make it intangible. However, he appears to favour the possibility of using human embryos for biomedical experiments.

We examine the biological beginning of human life, and we argue that an early human embryo is not a cell cluster lacking a programmed structure, but a living being of our species, perfectly organised, with individual genetic identity, an ability to manage its development and its own autonomy.

Therefore we argue that, based on the biological reality of the human embryo, this should be respected in all circumstances, something which Sandel, who is in favour of being able to use it for biomedical experiments, rejects.

Keywords: Michael Sandel; biological status of the human embryo; ontological status of the human embryo; moral status of the human embryo.

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Resumen: Michael Sandel es uno de los filósofos norteamericanos más comprometidos socialmente. En este trabajo, analizamos sus pensamientos en relación con el estatus moral del embrión humano.

En general, Sandel defiende que la vida humana debería considerarse como un regalo, el cual, en su opinión, la haría intangible. Sin embargo, parece que defiende la posibilidad de utilizar embriones humanos para experimentos biomédicos.

Examinamos aquí el principio biológico de la vida humana, y argumentamos que un embrión humano temprano no es un grupo de células carente de una estructura programada, sino un ser vivo de nuestra especie, perfectamente organizado, con identidad genética individual, la capacidad para dirigir su propio desarrollo y su propia autonomía.

Por tanto, sostenemos que, en base a la realidad biológica del embrión humano, esto debería ser respetado en todas las circunstancias, algo que Sandel, quien está a favor de su uso para experimentos biomédicos, rechaza.

Palabras clave: Michael Sandel; estatuto biológico del embrión humano; estatuto ontológico del embrión humano; estatuto moral del embrión humano.

Michael Sandel is one of the most prominent North American political philosophers due to his active participation over the last three decades in public debates on the most controversial questions of justice: from abortion to gay marriage, from genetic manipulation in humans to climate change, from state lotteries to advertising in the classroom (Sandel, 2006).

He was a member of the President's Council on Bioethics for seven years (2001-2007), a position that offered him the opportunity to reflect, deliberate and take a public position on some of the major bioethical debates of those years. Two of these were the object of special attention by the scientific community and public opinion in general: the ethical and legal status of the human embryo (on the occasion of debates on embryonic stem cell research) and the rightness of interventions on the human body to improve its production or increase its abilities. Professor Sandel has published articles on both in leading scientific journals (Sandel, 2004, pp. 207-209) and in reputable daily newspapers in the United States (Sandel, 2002). The main content of these reflections and position-taking can be found in his book *The case against perfection: Ethics in the age of genetic engineering* (Sandel, 2007). The main part of the book is dedicated to what he calls the "Ethics of human enhancement", while the epilogue is dedicated to the "Ethics of the embryo: the stem cell debate". Although these are different questions, they have at least two aspects in common, which Sandel highlights. On one hand, the objective of "human enhancement" can be sought by manipulating embryos, which leads us to the question about its ethical status. On the other hand, as we will see below, Sandel

understands that both types of practices –biological “enhancement” of human beings and the use of human embryos for research– should be assessed from what he calls the “gift ethic”. Sandel holds that human life is a gift, and should be accepted as such, and that deep down, trying to perfect life using biotechnological interventions leads to its instrumentalisation. In his words, “I have argued against the one-sided triumph of mastery over reverence, and have urged that we reclaim an appreciation of life as a gift” (Sandel, 2007, p. 101). This principle, which is the basis of his entire bioethical argument, does not prompt him to reject the use of human embryos in research, since he does not consider that, in this case, it falls within the instrumentalisation of human life and consequent violation of the gift ethic. Sandel is forceful in this respect: the “ethic of giftedness does not condemn it” (Sandel, 2007, p. 102).

The positions defended by Sandel for each of the two topics considered in the book have been the object of criticism. His rejection of those interventions that attempt “human enhancement” has been criticised by more liberal bioethical sectors, while his support of the use of human embryos in stem cell research has been criticised from bioethical positions that defend the inviolability of human embryonic life. On the following pages, we shall deal exclusively with the analysis of the arguments used by Sandel to defend his position on the human embryo.

“Critics object that extracting the stem cells destroys the embryo. They argue that life is a gift, then research that destroys nascent human life must surely be rejected” (Sandel, 2007, p. 102).

Against this position, Sandel maintains that the use of embryos for stem cell research does not mean ending the life of human beings nor does it go against the gift ethic that he himself defends.

Although we understand that the destruction of embryos means the destruction of human beings in the early stages of their development and that, therefore, it not only goes against the gift ethic but against human dignity, in these pages we are not going to focus on the defence of this position. Instead, we shall limit ourselves to weighing up the quality of the arguments used by Sandel in his book to defend his position on the respect due to the human embryo. In our opinion, these arguments are unconvincing from both a logical and a substantive point of view. One of the major defects that we find in his approach is his lack of interest in knowledge of the embryo from the biological point of view. Although it is obvious that biological knowledge of the human embryo does not determine an ethical position on respect for the embryo, it is also clear that this knowledge is necessary to address the ontological and ethical status of the embryo. Therefore, we consider it important to present the basic, widely shared ideas on the biological status of the human embryo in the first part of the paper. In the second part,



we will analyse the main arguments wielded by Sandel in favour of the use of human embryos in research.

However, before beginning, we should make a clarification. Although Sandel is close to the more liberal positions with respect to the protection due to the embryo, his thinking is built on different bases which are shared to a great extent by those who defend the inviolability of the life of the human embryo: the appreciation for life and its status as a gift; the inviolable respect for everyone; the moral imperative of the cure; and the respect for religious convictions in public debates. In relation to the latter aspect, Sandel barely dedicates a single comment to the role of religious convictions in public life, but it is sufficient to be able to highlight his distancing from Rawls' political liberalism and his more recent proximity to Habermas'. He recognises that "since some people hold strong religious convictions on the question, it is sometimes thought that it is not subject to rational argument or analysis" (Sandel, 2007, p. 104). However, he understands that religious convictions, even if they lack a privileged status that allows them to elude the scrutiny of political reason, do not disqualify those who hold them from defending them with arguments: "The fact that a moral belief may be rooted in religious conviction neither exempts it from challenge nor renders it incapable of rational defence" (Sandel, 2007, p. 104).

1. THE BIOLOGICAL STATUS OF THE HUMAN EMBRYO

When tackling the debate on whether stem cell research should be permitted, Sandel raises three questions (Sandel, 2007, pp. 103-104):

First, should embryonic stem cell research be permitted? Second, should it be funded by the government? Third, should it matter, for either permissibility or funding, whether the stem cells are taken from already existing embryos left over from fertility treatments or from cloned embryos created for research?

Of the three questions, the first is the most fundamental and difficult to address, since its answer conditions the other two (Sandel, 2007, p. 104).

In order to answer these questions, especially the first, we believe that it is essential, although obviously not sufficient, to ask ourselves what type of entity a human embryo is from a biological point of view. The answers to this question can be divided into two groups: a) a human embryo is a cluster of cells with no ontological value until the consolidation of its implantation in the maternal uterus or even later and b) from the time that the single cell human embryo is constituted, there is an individual human being, different from all others already existing. When debating the ethical status of



the human embryo, it is important to determine the moment from which the human embryo becomes a biological being of our species, since from that moment, we will have to conclude that it is a human being, which decisively affects its ontological and ethical status. As we have already pointed out, it is notable that, when it comes to wondering about the rightness of using human embryos in research, Sandel is not interested in its biological status and begins his ethical response starting from notoriously inadequate biological foundations.

Current biological knowledge concludes that the human preimplantation embryo is really a biological being organised as an independent living being and not a cell cluster without a defined structure, nor independently organised. While there is no biological evidence that leads us to consider the preimplantation embryo as a mere cell cluster, there is, however, a lot of evidence leading to the consideration of the early human embryo as a being of our species. Below, we state the most relevant evidence:

1. The zygote, and consequently also the embryo which is only a few days old, has its own genetic identity, since its genome contains all the information necessary for the new being to develop fully towards its condition of living adult being. In other words, its genome is determining its genetic identity, on the basis of its individual identity. The subsequent evolution of the embryo is a continuous biological process which carries on giving rise to different phenotypic properties, but always within a living unit which identifies it as a human being, genetically distinct from all others.

However, identifying the individuality of the human being with its genome seems a limited and even erroneous concept. Every day, there are more biological arguments to allow that a human individual is something more, certainly quite a lot more, than its genetic code. We have ever more information about non-genetic mechanisms that influence the development of the embryo. The DNA of the human genome is necessary but not sufficient to identify a human individual.

2. Therefore, the idea has been consolidated that not all the genetic information is expressed in its original genome, but that that information grows with the expression of the genes contained in it, i. e. with the activation of its specific development program, which continues to take place basically due to the interaction of the genome with its environment. This is called epigenetic activation. This activation causes slight modifications in the genome, such as: methylation of the DNA cytosines, remodelling of its chromatin due to acetylations, methylations and phosphorylations, but always without modifying its nucleotide sequence.

3. Another determinant biological fact of the start of human life is the fusion of the gamete membranes, which results in the asymmetric structure of the two-cell embryo and which is determined by the polarisation line of the zygote, which is established between the site through which the spermatozoon penetrates the zona pellucida of the



oocyte and its pronucleus. This asymmetric division gives rise to two unequal blastomeres, each with well-defined functions in the subsequent embryonic development, as has been shown by Zernicka Goetz's group (Piotrowska, Wianny, Pedersen, Zernicka-Goetz, 2001, pp. 3739-3748).

4. Another biological argument which supports the idea that the product resulting from the first and subsequent divisions of the zygote is not a cluster of cells, but a biological living being, can be found in the so-called position information. This refers to certain mechanisms which regulate the differentiation of the cells of the early embryo that depend on the interactions which are established between the cells themselves and between each of them with their cell niche, interactions which promote the expression of new genes. In recent years, there have been major advances in the knowledge of the factors implicated in this cell interaction, among them the morphogens, molecules which favour the expression of silent genes located in neighbouring cells.

5. However, there are not only biochemical mechanisms which regulate the evolution of the preimplantation embryo, but also genetic mechanisms. Indeed, it is known that as the biological evolution of the embryonic cells progresses, they lose plasticity, i.e. they continue to lose the capacity to generate different cell types. Thus, this process is genetically regulated. While there are various genes which participate in this process, there are basically three major ones, Oct-4, Sox 2 and Nanog, although it has been recently suggested that it is probably the latter which plays a more determinant role.

6. An extremely interesting biological mechanism in our opinion, which shows that the early embryo is an organised living being and not a cluster of cells, is the biochemical dialogue which is established between it and its mother, especially aimed at ensuring that the embryo is put in contact with the mother's uterine endometrium at the right time. Various messengers have been identified in this molecular dialogue. Thus, on the part of the embryo are human chorionic gonadotrophin, prolactin, interleukin-1, prostaglandin-2, various leptins and platelet-activating factor, among others, and on the part of the mother, transforming growth factor β , metalloproteinase 7, corticotrophin releasing factor, calcitonin and also various leptins. All this is expression of a dynamic biochemical dialogue which is established between the embryo and its mother.

7. It is also worth noting that the phenotypic identity of the embryo is not solely determined by its genome, as previously mentioned, but also by the proteins that it codes and by the systems that regulate its production, such as certain proteolytic or oxidation processes, activation of disulphur bonds, phosphorylations, glycosylations, etc., all activities which would be difficult to carry out if the early embryo were not a perfectly organised biological being which possesses all the mechanisms and capabilities to develop the programs which will lead to its definitive phenotype and not an arbitrarily constructed cluster of cells.



All of the above supports the idea, without intending to exhaust the topic, that with the joining of the human male and female gametes and the fusion of their membranes and pronuclei, a continuous, autonomous and self-directed process begins which leads to the constitution of a zygote, with its own genetic identity, which has the ability to initiate the development of a human being. This process will not stop so long as no external action impedes it, and if it has the proper medium to provide it with the nutrients and biological conditions necessary for its development.

Therefore, at that time, the time at which the engine of development of that zygote is started up, from a biological point of view, the life of a new human being begins. This is indisputable today.

What we have just stated does not necessarily lead to the conclusion that the human embryo is inviolable, nor even its automatic recognition as a personal being. We understand that there are good arguments to conclude that this information supports the status of the human embryo as a personal human being, but this is not the time to state them.

However, in view of the scientific evidence provided, we believe that the burden of proof is reversed. It is those who defend that the manipulation of the human preimplantation embryo does not entail any ethical difficulty (since they understand that there are no biological reasons to state that this early embryonic being is a living being of our species) who have to demonstrate that either there are sufficient biological reasons to affirm that this early embryonic being is not a living being of our species, or that despite that, there are strong ethical arguments to award them a lower level of protection than any other human being.

2. THE ETHICAL STATUS OF THE EMBRYO

In this second part, we will analyse the main arguments put forward by Sandel to defend his position on the respect due to the human preimplantation embryo. However, before we deal with those arguments, we will refer to the third of the questions that Sandel raises in his book and which brings us to the debate on cloning: is it relevant, from an ethical point of view, that human embryos upon which research is conducted have been obtained by cloning or are surplus embryos from assisted reproduction techniques?

2.1. *In vitro* embryos and cloned embryos

There are three more common answers to this question. The first understands that the cloned embryo should be given a biological and ontological status different to the



embryo resulting from fertilisation, to the point where the correct thing would be to call it by another term, such as “clonote”. Since it is not really an embryo, neither would it be worthy of the protection that some people demand for an embryo. The second considers that the entity resulting from the cloning is an embryo, just like the one produced by fertilisation, and since both types of embryos deserve the same respect as mature human beings, it is improper to use them for research. The third, starting from the equal value of the embryos, regardless of the way in which they were created, establishes a difference in treatment depending on certain circumstances, such as the stage of development that they are in, or the purpose for which they have been created. From this starting point, some people believe that creating embryos for research –whether by in vitro fertilisation or by cloning– is immoral, while using embryos that are left over from assisted reproduction techniques, whose fate is indefinite freezing or destruction, would be acceptable.

Sandel takes a position with respect to these three possible answers. He mentions the first of the positions, which was defended within the President’s Council on Bioethics by Paul McHugh, without criticising it. He admits that, if the substantial difference between the embryo and the clonote can be supported, the position defended by McHugh is coherent. He does not share the second position, although he recognises that it is coherent, because he does not accept that the life of the embryo merits the same respect as that of an adult human being. Finally, he criticises –and we understand that with reason– the incoherence of the third position, especially when it is defended by those who say they defend the equal value of all human life, regardless of its stage of development.

For Sandel, and for us as well, if we start from the sanctity of human embryonic life, it is neither coherent nor right to establish a difference between the ontological value of the embryo created by cloning and the embryo left over from in vitro fertilisation:

if cloning for stem cell research violates the respect the embryo is due, then so does stem cell research on IVF spares, and so does any fertility treatment that creates and discards excess embryos (Sandel, 2007, p. 111).

It is precisely because Sandel does not accept the starting point of the sanctity of human embryonic life, that he can denounce the incoherence of the third position and, at the same time, defend the ethical lawfulness of using human embryos for biomedical experiments, whatever their origin.

In view of the above, it can be seen that the major question is in determining whether the early human embryo is worthy or not of the same respect as other human beings. Sandel denies this, for which he uses some arguments that we will analyse below, and which lead us to conclude that they are inconsistent and inadequate.



2.2. Sandel's arguments on the ethical status of the human embryo

In order to defend that, although human embryos merit certain respect, they can be created and used for research, Sandel uses different arguments.

1. *The therapeutic usefulness of stem cell research.* First of all, he invokes the curative potential of research with human embryos, insofar as they will be used "to promote cures for diabetes, Parkinson's, and other degenerative diseases" (Sandel, 2007, p. 102). Neither at the time at which Sandel first presented his position on the human embryo, nor at present, six years later, can it be said that these expectations are reasonable. To date, there have been no completed clinical trials aimed at curing human beings with embryonic stem cells. It is true that regenerative and reparatory medicine is taking firm steps forward using stem cells, but essentially adult stem cells. This can be confirmed by visiting a web page which lists all currently on-going clinical trials with stem cells. As of January 10, 2011 there were 98,748 on-going clinical trials in 171 countries. Of these, 3321 were using adult stem cells and only 10 were using embryonic stem cells. However, if these latter 9 trials are analysed carefully (Table I), it can be seen that none of them are directly aimed at curing patients. As far as we are aware, the first clinical trial with embryonic stem cells planned for therapeutic purposes was the one sponsored by the company Geron, approved by the North American FDA on January 23, 2009 (Geron, 2009). This proposes using these cells to treat 11 patients with spinal cord injury. This trial is currently on-going, so evidently there are no definitive clinical results.

It may be that research with human embryos and clinical trials with human embryonic stem cells can contribute in the future to curing serious diseases, but at present, the only therapeutic results have come from adult stem cells and the main therapeutic expectations for the future can be found in iPS cells.

We consider that, on referring to the curative potential of embryonic stem cells, Sandel commits two types of mistakes. On one side, he gives disproportionate credibility to the future scenarios that many scientists draw, more in the light of their desires than scientific evidence. In fact, among both scientists who favour and those against research with embryos, there are many who have condemned the illusory expectations that are being spread about embryonic stem cell research. To ethical theorists, a greater capacity for discernment between what is evidence, a possibility (more or less likely) and an illusion is necessary. The second mistake has to do with the introduction of an element in the debate that stirs the sensitivity of people and which, consequently, can distort their ability to judge with impartiality. We are not saying that, in this debate, references to the therapeutic possibilities of various research lines should be omitted, but we do consider that they should be made with due caution (something which as we have just seen has



not been done) and only after having addressed the question on the value of the human embryo, beyond its usefulness.

2. *The human embryo is not one of "ours"*. Logically, Sandel does not limit himself to justifying the use of human embryos in research for the benefits that may be obtained. He takes these advantages –more fictitious than real– into consideration because he does not accept that the human embryo can be considered as an authentic human being. To support this position, Sandel bases his argument on the statement that

It is not a fetus. It has not recognizable human features or form. It is not an embryo implanted and growing in a woman's uterus. It is, rather, a blastocyst, a cluster of 180 to 200 cells, growing in a petri dish, barely visible to the naked eye (Sandel, 2007, pp. 112-113).

This argument offers dual logic weakness. On one side, Sandel is not interested in knowing exactly what a human embryo is from the biological point of view. Is it enough to say that it does not look like an adult human being, barely visible to the human eye, or that it is not implanted in a uterus, to reach the conclusion that we find ourselves with scores of human cells that lack value by themselves? Evidently not. To determine what type of entity a human embryo in vitro is, it is essential to have basic, up-to-date knowledge of the biological aspects. On this point, Sandel prefers to resort to feelings more than to scientific evidence, and the result is logically inconsistent. By this, we insist, we are not saying that biological knowledge of the embryo necessarily leads to a certain position on its ethical value. In fact, scientists with an equal level of biological knowledge of the embryo hold divergent ethical positions. The only thing that we can highlight is that it seems a little harsh to venture an ethical position about the embryo without any interest in knowing what it is from a biological point of view.

On the other hand, the arguments that he uses to assume that the human embryo, being a human life, is not a human being, are rather inconsistent. Sandel believes that the appearance, size and place where the embryo is situated determine its value, but he does not say why these circumstances, and not others, are those that should be taken into account. In relation to this, we should remember that, throughout history, humans have resorted to many different criteria to justify the different value between members of their species: why now would it be right to turn to those proposed by Sandel, and in the specific way in which he does so, to establish a substantial difference between the human embryo and the mature human being? Basic argumentative rigor would require that he answer this question, but Sandel does not do so.

Getting to the heart of the matter, we believe that the criterion of *human appearance* is not acceptable for marking the ontological difference between the embryo and the adult human being. The appearance does not define the being, but the being the appea-

rance: the appearance is a manifestation of the being. What is the typical appearance of a human being? Sandel does not appear to turn to any biological or philosophical criterion to answer this question, and arbitrarily reduces the appearance of the human being to a certain morphology. However, the criterion for definition of a being must be more in the correlation that its appearance has with its being, than on the morphology of its appearance. This is particularly relevant in living creatures, subject to development, whose being goes through different phases, each one of different complexity, potentiality and morphology, but all intimately correlated, because they feed from the same life principle. Thus, the chrysalis is no different from the silkworm from which it arose due to its life development, nor is it any different to the butterfly which it becomes. This is not because there has not been any interruption of life between the silkworm, the chrysalis and the butterfly at some time: the worm does not die so that the chrysalis can appear, nor does the chrysalis die so that the butterfly can emerge. Life's continuity indicates an entitative unit, a defined organism, and not two or three, or more, etc., even though the different moments of this single life journey are strikingly different in their appearance. While there is no death, the living individual continues to be *the same*, although not in the same way.

But returning to Sandel's position, the question is as follows: why should an age group be taken as a criterion for attributing a biological entity with its character of living human being and not another? Or a certain somatic morphology? Some reply that it can be considered human when it develops a nervous system. The question is, why? Why can we not take a wider age group, from an eight-cell zygote, or four-cell or two-cell? Who can state that the spherical morphology of a zygote is not *human*, i.e. *typical of a human individual at that age*? To be reasonable, it should be said that there is no convincing criterion to say that we have not been spherical at some stage of our lives, and that, therefore, human morphology is as spherical as it is biped.

3. *An acorn is not an oak tree, nor an embryo a human being.* In relation to what we have just stated, and to support his assertion that the zygote and the human embryo cannot be compared biologically or ontologically with the adult human individual, Sandel uses the well-worn example of the acorn and the oak tree: "Consider an analogy: Although every oak tree was once an acorn, it does not follow that acorns are oak trees, or that I should treat the loss of an acorn eaten by a squirrel in my front yard as the same kind of loss as the death of an oak tree felled by a storm. So do human embryos and human beings, and in the same way. Just as acorns are potential oaks, human embryos are potential human beings" (Sandel, 2007, pp. 116-117).

To our understanding, Sandel's mistake is in thinking that there is continuity in the development between the acorn and the oak tree. In reality, this continuum between both does not occur. Continuity exists when the biological development engine starts



up, transforming the inanimate acorn to an animate plant, to a budding oak. From that time, if the plant nature were inviolable, the “activated” acorn would also be, but not before. An acorn, if it has not started its engine of development, can remain in its stationary state of acorn indefinitely. A human zygote, on the other hand, if it could be conserved without being destroyed, would be unable to remain static in its status, because its life continuum, unlike the acorn, has been started up and its development, if not destroyed, is unstoppable. Equating the acorn with the zygote and the oak with the living adult human being is not only a biological error, but a metaphysical one too.

4. *The non-arbitrary determination of the time at which the person appears.* As we have seen, Sandel maintains that the early human embryo cannot be considered a human being or a person. This condition is acquired at a later time, although he does not mention the exact moment at which this fundamental event occurs. Sandel echoes the criticism that those in favour of the equal moral status of the embryo and the adult human being have made to those who, like him, hold the opposite:

defenders of the equal-moral-status view challenge their interlocutors to specify a nonarbitrary moment in the course of human development when personhood, or inviolability, sets in. If the embryo is not a person, then when exactly do we become persons? This is not a question that admits an easy answer (Sandel, 2007, p. 117).

However, the difficulty in determining the exact time at which the person arises does not have to lead us to think that that time is the moment of fertilisation. To defend his position, Sandel gives the following analogy:

Suppose someone asked you how many grains of wheat constitute a heap? One grain does not, or two, nor three. The fact that there is no nonarbitrary point when the addition of one more grain will bring a heap into being does not mean that there is no difference between a grain and a heap. Nor does it give us reason to conclude that a grain must be a heap (Sandel, 2007, p. 118).

The wit of the analogy, however, is of no use for answering a crucial question: why establish the limit of inviolability in function of the amount and not the nature of the being? It is the nature of an individual, and not the “amount of nature” which assigns it its character of being inviolable or not. Furthermore, this argument is even more flimsy if we consider that most of those who defend Sandel’s thesis maintain that the inviolability of the embryo begins with the consolidation of implantation, which in terms of quantity is the change from a cluster of 200 cells to another cluster of 200 cells and a few more. They use, then, a criterion of quality and not quantity, by admitting that the embryo acquires the character of human being with implantation. However, this criterion

does not seem valid to us either, since beforehand it was indicated that attributing the status of human being to the embryo depends on its own nature and not the amount of cells that it has, nor its viability.

There is a time at which the process of constitution of a new living being culminates. The difficulty is in setting that time, but not in understanding that what appears is an individual organic system, capable of managing its own development. Self-management determines individuality. Furthermore, it should not be forgotten that this is the capacity for self-management, not for autonomy. As we go towards adulthood, we continue growing in autonomy, and as we approach old age, we gradually lose autonomy. However, our self-management is never completely autonomous. We always depend on environmental conditions, to the point where our life depends on what we eat, drink and breathe. For this reason, neither the level of dependence on the maternal environment, nor the fact of being subject to temporal development, affects the individual character of human life, provided that this human life is a living, functional unit.

5. *The distinction between human life and the life of a human being.* As we have seen, Sandel recognises that all human cells, including the single cell embryo, are human life: “any living human cell (a skin cell, for example) is «human life» in the sense of being human rather than bovine and living rather than dead” (Sandel, 2007, p. 115). Nevertheless, this does not lead us to consider it a person and, therefore, inviolable. However, it is remarkable that Sandel awards so little importance to the substantial difference that exists between any living human cell and a blastocyst. Human cells, from a biological point of view, are not human life; they only have human cell life. A human cell can only give rise to another cell, and never to a living human being. On the contrary, human life has its own characteristics which define it as such. A human life is only that which can develop and live as a human being and procreate with another being of the same species. The biological structure made up of cells, which has those two functions, is the only one that can be considered an individual human life.

3. CONCLUSION

Sandel is a socially committed philosopher. Not only has he worked in teaching and research, but he has participated actively in most of the civic debates on questions of justice which, over the last three decades, have affected humanity as a whole or certain human communities. Not only that, he has always endeavoured that both his research and his speeches in the media be predominated by clarity, which has multiplied his influence beyond academic circles.



Although his position on the protection due to the human embryo is far from that of those of us who defend the equal moral status between the embryo and the adult human being, there are many shared points: the appreciation for human life and its status as a gift; the inviolable respect towards everyone; the moral imperative of the cure in biomedical activities; the respect for religious convictions. In view of these significant agreements, we understand that the differences between Sandel's position and that of those who favour "equal status" arise, to a great extent, from the discrepancy when it comes to interpreting the same principles.

In previous pages, we have tried to analyse the arguments used by Sandel to defend his favourable position towards the use of human embryos in research. It seems to us that some of these are inconsistent from a logical point of view and others are insufficient from a material point of view.

If this conclusion is true, it is also relevant, because Michael Sandel has exerted an enormous influence when it comes to taking a position on this matter, not only in the academic community, but also among scientists, politicians and the general public.

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